

WHAT IS CLAIMED IS:

- 1           1.       A method for executing a query, comprising:  
2           matching a query to an outlier materialized query table;  
3           searching the query for a source predicate;  
4           searching the outlier materialized query table for a target column that corresponds  
5   to a source column in the source predicate;  
6           deriving a new range predicate based on the target column; and  
7           introducing the new range predicate into the query.
- 1           2.       The method of claim 1, further comprising:  
2           merging the new range predicate into the query.
- 1           3.       The method of claim 1, further comprising:  
2           generating a bounds view from source predicate information and range binding  
3   information collected for the target column, wherein the bounds view computes a lower  
4   bound and an upper bound for the new range predicate, and wherein the bounds view  
5   may be generated using at least one of a range multiplying technique or a range  
6   stretching technique.
- 1           4.       The method of claim 1, wherein matching the query to an outlier  
2   materialized query table further comprises:  
3           creating a first query graph model representation of the query;  
4           creating a second query graph model representation of the outlier materialized  
5   query table; and  
6           comparing the first query graph model and the second query graph model.
- 1           5.       The method of claim 1, wherein there is a join in the outlier materialized  
2   query table and wherein matching further comprises:

1           determining that join predicates other than the outlier predicate in the outlier  
2 materialized query table have matching predicates in the query.

1           6.       The method of claim 5, wherein the new range predicate is derived by  
2 selecting the target column from base tables involved in the join.

1           7.       The method of claim 6, wherein the target column is from a table other  
2 than the one in which the source column resides.

1           8.       The method of claim 6, wherein the target column is from a same table as  
2 the one in which the source column resides.

1           9.       The method of claim 1, wherein the query contains a correlation predicate.

1           10.      The method of claim 9, further comprising:  
2           translating the correlation predicate into a join predicate in a context of the outlier  
3 materialized query table;  
4           when the translated join predicate matches the join predicate in the outlier  
5 materialized query table, deriving a new predicate for the correlation predicate in a child  
6 query block using a source predicate on a quantifier of a parent query block; and  
7           wherein searching the query for the source predicate further includes searching  
8 the parent query block for the source predicate.

1           11.      An article of manufacture including a program for executing a query,  
2 wherein the program causes operations to be performed, the operations comprising:  
3           matching a query to an outlier materialized query table;  
4           searching the query for a source predicate;  
5           searching the outlier materialized query table for a target column that corresponds  
6 to a source column in the source predicate;

1 deriving a new range predicate based on the target column; and  
2 introducing the new range predicate into the query.

1 12. The article of manufacture of claim 11, wherein the operations further  
2 comprise:  
3 merging the new range predicate into the query.

1 13. The article of manufacture of claim 11, wherein the operations further  
2 comprise:  
3 generating a bounds view from source predicate information and range binding  
4 information collected for the target column, wherein the bounds view computes a lower  
5 bound and an upper bound for the new range predicate, and wherein the bounds view  
6 may be generated using at least one of a range multiplying technique or a range  
7 stretching technique.

1 14. The article of manufacture of claim 11, wherein the operations for  
2 matching the query to an outlier materialized query table further comprise:  
3 creating a first query graph model representation of the query;  
4 creating a second query graph model representation of the outlier materialized  
5 query table; and  
6 comparing the first query graph model and the second query graph model.

1 15. The article of manufacture of claim 11, wherein there is a join in the  
2 outlier materialized query table and wherein the operations for matching further comprise  
3 determining that join predicates other than the outlier predicate in the outlier materialized  
4 query table have matching predicates in the query.

1 16. The article of manufacture of claim 15, wherein the new range predicate is  
2 derived by selecting the target column from base tables involved in the join.

1           17.     The article of manufacture of claim 16, wherein the target column is from  
2     a table other than a table in which the source column resides.

1           18.     The article of manufacture of claim 16, wherein the target column is from  
2     a same table as the one in which the source column resides.

1           19.     The article of manufacture of claim 11, wherein the query contains a  
2     correlation predicate.

1           20.     The article of manufacture of claim 19, wherein the operations further  
2     comprise:  
3           translating the correlation predicate into a join predicate in a context of the outlier  
4     materialized query table;  
5           when the translated join predicate matches the join predicate in the outlier  
6     materialized query table, deriving a new predicate for the correlation predicate in a child  
7     query block using a source predicate on a quantifier of a parent query block; and  
8           wherein searching the query for the source predicate further includes searching  
9     the parent query block for the source predicate.

1           21.     A system for executing a query, comprising:  
2           means for matching a query to an outlier materialized query table;  
3           means for searching the query for a source predicate;  
4           means for searching the outlier materialized query table for a target column that  
5     corresponds to a source column in the source predicate;  
6           means for deriving a new range predicate based on the target column; and  
7           means for introducing the new range predicate into the query.